Bellwork: 3/22/13

Simplify the following rational expression:

$$\frac{3x^2+11x+10}{x^2+8x+12} \div \frac{9x^2-25}{x^2+x-30} = \frac{3x^2+11x+10}{x^2+8x+12} \cdot \frac{x^2+x-30}{9x^2-25}$$

$$= \frac{(3x+5)(x+2)}{(x+2)(x+6)} \cdot \frac{(x+6)(x-5)}{(3x+5)(3x-5)}$$

$$= \frac{(x-5)}{(3x-5)}$$

$(3x^2+6x)(5x+10)$

$3x(x+2)+5(x+2)$

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WORKSHEET 8.4 #2 PERIOD _____

Divide and simplify each of the following expressions.

1) $\frac{x^2-25}{2x} \div \frac{3x+15}{12x^2-24x} =$

2) $\frac{5x-15}{x^2-25} \div \frac{2x}{x^2+5x} =$

3) $\frac{x^2-7x+10}{x-1} \div \frac{3x^2-6x}{x^2-1} =$

4) $\frac{x^2-7x+6}{x+3} \div \frac{x^2-5x-6}{x+3} =$

5) $\frac{x^2-2x-8}{4x^2+8x} \div (x^2+x-20) =$

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6) $\frac{9x^2-y^2}{2x} \div \frac{3x^2y+xy^2}{4x^2y^2} =$

7) $\frac{(m-3)^2}{m^2-6m+9} \div \frac{m^3-9m}{m^2-9} =$ $\frac{(m-3)(m-3)}{(m-3)(m-3)} \cdot \frac{(m-3)(m+3)}{m(m^2-9)}$

$\frac{(m-3)(m+3)}{m(m-3)(m+3)} = \frac{1}{m}$

8) $\frac{\frac{x^2-4}{x+3}}{\frac{x^2-4x+4}{x^2+3x}} =$

$(2x^2+6x)+3x+9$ $(10x^2+15x)+4x+6$

$2x(x+3)+3(x+3)$ $5x(2x+3)+2(2x+3)$

9) $\frac{2x^2+9x+9}{x+1} \div \frac{10x^2+19x+6}{5x^2+7x+2} \overset{60}{\underset{10}{=}}$ $\frac{(2x+3)(x+3)}{x+1} \cdot \frac{(5x+2)(x+1)}{(5x+2)(x+3)}$

$(5x^2+5x)+2x+2$

$5x(x+1)+2(x+1)$ $x+3$

10) $\frac{b^2-100}{b^3} \div \frac{3b^2-31b+10}{2b} \overset{30}{=}$ $\frac{(b+10)(b-10)}{b^3} \cdot \frac{2b}{(3b-1)(b-10)}$

$(3b^2-30b)-1b+10$

$3b(b-10)-1(b-10)$ $\frac{2(b+10)}{b^2(3b-1)}$

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